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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte JUNICHI UENO*

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Appeal 2009-013991  
Application 10/549,453  
Technology Center 3700

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Before JOHN C. KERINS, STEVEN D.A. McCARTHY and  
EDWARD A. BROWN, *Administrative Patent Judges*.

McCARTHY, *Administrative Patent Judge*.

DECISION ON APPEAL

1 STATEMENT OF THE CASE

2 The Appellant appeals under 35 U.S.C. § 134 from the Examiner's  
3 final decision rejecting claims 11 and 19-31. The Examiner rejects claims  
4 11 and 19-31 under 35 U.S.C. § 112, first paragraph, for failure to comply  
5 with the written description requirement; claims 11, 19, 23, 27 and 31 under  
6 35 U.S.C. § 102(b) as being anticipated by Susumu (JP H10-180623 A,  
7 publ. Jul. 7, 1998); claims 11, 19, 21, 23, 25, 27, 29 and 31 under 35 U.S.C.

1 § 103(a) as being unpatentable over Susumu; and claims 20, 22, 24, 26, 28  
2 and 30 under § 103(a) as being unpatentable over Susumu and Fuminari (JP  
3 H10-202511 A, publ. Aug. 4, 1998). Claims 1-10, 12-18 and 32-34 are  
4 cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

5 We AFFIRM.

6 Claim 11 is the sole independent claim on appeal:

11. A wafer-holding carrier which is used when holding wafers between an upper turn table and a lower turn table to which polishing pads are attached, and polishing both side of the wafers by a polishing agent, wherein

the carrier has polishing agent-passing holes for passing the polishing agent through as well as wafer-holding holes for containing and holding the wafers, and

the total area of the polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier, and

each of the polishing agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm.

## ISSUES

24 The Appellant argues the rejections of method claims 27 and 29  
25 separately from the rejections of the other claims on appeal. (See App. Br.  
26 18-22). Otherwise, the Appellant argues the claims rejected under each  
27 ground of rejection as a group. Only issues and findings of fact contested by  
28 the Appellant will be addressed. See *Ex Parte Frye*, 94 USPQ2d 1072,  
29 1075-76 (BPAI 2010). Furthermore, the Board does not review procedural

<sup>1</sup> issues or engage in the supervision of Examiners. *See In re Hengehold*, 440 F.2d 1395, 1403 (CCPA 1971).

*First*, does the Specification provide an adequate written description to convey to one of ordinary skill in the art that the Appellant possessed the subject matter of claim 11 as of the filing date? (*See* App. Br. 7-15).

*Second*, does Susumu disclose a wafer-holding carrier in which the total area of the polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier? (App. Br. 15).

*Third, do the evidence and technical reasoning underlying the rejection of claim 11 adequately support the conclusion that the subject matter of claim 11 would have been obvious from the teachings of Susumu?*

First Issue

## ANALYSIS

“When the applicant adds a claim or otherwise amends his specification after the original filing date . . . the new claims or other added material must find support in the original specification.” *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. General Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001). More specifically, the specification, abstract, drawing and original claims must be such as to have clearly allowed one of ordinary skill in the art as of the filing date to recognize that the Appellant invented what is claimed in the amended claim. *Ariad Pharmas., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010)(en banc). As the

1 Appellant points out, this support may be inherent rather than express.  
2 (App. Br. 12-13). Nevertheless, “[i]n order for a disclosure to be inherent,  
3 ‘the missing descriptive matter must necessarily be present in the [original]  
4 application’s specification such that one skilled in the art would recognize  
5 such a disclosure.’” *TurboCare Div.* at 1119 (quoting *Tronzo v. Biomet,*  
6 *Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998)).

7 The Appellant contends that the Specification describes a subgenus of  
8 wafer-holding carriers in which the total area of the polishing agent-passing  
9 holes of a carrier occupies more than 20% and 30% or less of a main surface  
10 of the carrier because the Specification describes:

11 (1) a genus of wafer-holding carriers in which the total  
12 area of the polishing agent-passing holes occupies no less than  
13 15%, but no more than 30%, of the main surface of the carrier  
14 (See, e.g., Spec. 7, ll. 6-18; Spec. 8, ll. 11-17; Spec. 29, ll. 1-15;  
15 Abstract, ll. 1-14; original claim 1);

16 (2) an example of a wafer-holding carrier in which the  
17 total area of the polishing agent-passing holes occupies  
18 approximately 29.59%, of the main surface of the carrier (Spec.  
19 18, ll. 19-25); and

20 (3) an example of a wafer-holding carrier in which the  
21 total area of the polishing agent-passing holes occupies  
22 approximately 28.60%, of the main surface of the carrier (Spec.  
23 28, ll. 7-18).

24 A Specification does not describe a subgenus as a matter of law merely by  
25 describing a genus encompassing the subgenus and two examples falling  
26 within the subgenus. See *In re Smith*, 458 F.2d 1389, 1395 (CCPA

1 1972)(“[I]t cannot be said that such a subgenus is necessarily always  
2 implicitly described by a genus encompassing it and a species upon which it  
3 reads.”).

4 We find that the Specification fails to provide a written description of  
5 the subgenus of wafer-holding carriers in which the total area of the  
6 polishing agent-passing holes occupies more than 20% and 30% or less of a  
7 main surface of the carrier. Our finding is based on the following subsidiary  
8 findings.

9 The Specification consistently discloses the genus of wafer-holding  
10 carriers in which the total area of the polishing agent-passing holes of each  
11 carrier occupies no less than 15%, but no more than 30%, of the main  
12 surface of the carrier. (*See, e.g.*, Spec. 7, ll. 6-18; Spec. 8, ll. 11-17; Spec.  
13 29, ll. 1-15; Abstract, ll. 1-14; original claim 1). Two of the four example  
14 wafer-holding carriers disclosed by the Specification fall within the genus  
15 described in the Specification but not the subgenus recited in representative  
16 claim 11. (*See* Spec. 17, l. 13 – 18, l. 3 (15.18%) and Spec. 26, l. 8-17  
17 (17.23%)). The Appellant has not identified any passage of the  
18 Specification which speaks of 20% as a lower bound on the total area of the  
19 main surface occupied by polishing agent-passing holes. This lack of  
20 description would have indicated as of the filing date that the Appellant  
21 regarded the genus described in the Specification rather than the subgenus  
22 recited in representative claim 11 as their invention.

23 The Specification provides technical reasons why the lower bound of  
24 the genus should be 15% and the upper bound of the genus should be 30%.  
25 (Spec. 7, l. 19 – 8, l. 5; Spec. 8, ll. 11-17; *see also* Spec. 18, ll. 4-17;  
26 Abstract, ll. 8-14). The Specification does not appear to provide a technical

1 reason why one of ordinary skill in the art might define any subgenus within  
2 the genus, much less the specific subgenus of wafer-holding carriers in  
3 which the total area of the polishing agent-passing holes occupies more than  
4 20% and 30% or less of a main surface of the carrier. The absence of a  
5 technical reason why one might define a subgenus of wafer-holding carriers  
6 in which the total area of the polishing agent-passing holes occupies more  
7 than 20% and 30% or less of a main surface of the carrier would have  
8 implied that the Appellant had not invented the subgenus as of their filing  
9 date.

10 The Specification discloses two examples of wafer-holding carriers  
11 falling within a subgenus in which the total area of the polishing agent-  
12 passing holes occupies more than 20% and 30% or less of a main surface of  
13 the carrier. When these examples are read in context, however, they would  
14 not have allowed one of ordinary skill in the art to recognize that the  
15 Appellant invented the subgenus recited in representative claim 11. The  
16 example disclosed at page 18, lines 19-25, in which the total area of the  
17 polishing agent-passing holes occupies approximately 29.59% of the main  
18 surface of the carrier, immediately follows a paragraph explaining why the  
19 upper limit on the total of the polishing agent-passing holes should be 30%.  
20 A reader coming upon the example disclosed at page 18, lines 19-25 likely  
21 would interpret the example as illustrative of the upper limit of 30% rather  
22 than as indicative of a significantly smaller lower limit of 20%.

23 The Specification compares the performance of the example disclosed  
24 at page 28, lines 7-18, in which the total area of the polishing agent-passing  
25 holes occupies approximately 28.60% of the main surface of the carrier, to  
26 the performance of a comparative example in which the total area of the

1 polishing agent-passing holes occupies approximately 14.30% of the main  
2 surface of the carrier. The percentage 14.30% falls well below the recited  
3 lower limit of 20%. The comparison does not imply that the Appellant had  
4 invented a subgenus of wafer-handling carriers in which the total area of the  
5 polishing agent-passing holes occupies more than 20% and 30% or less of a  
6 main surface of the carrier. Based on these subsidiary findings, we find that  
7 the Specification does not comply with the written description requirement  
8 with respect to the subject matter of representative claim 11.

9       *In re Wertheim*, 541 F.2d 257 (CCPA 1976), cited by the Appellant  
10 (see App. Br. 14), is distinguishable. In *Wertheim*, the applicant claimed a  
11 process for preparing a powdered coffee extract which comprised adding  
12 inert gas to a concentrated aqueous extract of roast coffee containing about  
13 35% to 60% by weight of soluble coffee solids. *Id.* at 259 and 261-62. A  
14 parent application to which the applicants claimed priority disclosed  
15 concentrating the aqueous extract to about 25% to 60% by weight of soluble  
16 coffee solids. In addition, the parent application disclosed specific  
17 embodiments in which the aqueous extract was concentrated to 36% and to  
18 50% by weight of coffee solids. *Id.* at 262. The predecessor of our  
19 reviewing court cited *Smith* affirmatively and held that “[m]ere comparison  
20 of ranges is not enough, nor are mechanical rules a substitute for an analysis  
21 of each case on its facts to determine whether an application conveys to  
22 those skilled in the art the information that the applicant invented the subject  
23 matter of the claims.” *Id.* at 263. The court held “[t]hat what appellants  
24 claim as patentable to them is less than what they describe as their invention  
25 is not conclusive if their specification also reasonably describes that which  
26 they do claim.” *Id.*

1        Here, as discussed previously, the Specification does not reasonably  
2 describe the subject matter of representative claim 11. The facts here are  
3 distinguishable from those in *Wertheim*. In *Wertheim*, the applicants in their  
4 specification provided a description of specific concentration levels (36%  
5 and 50%) which reasonably delimited the range of 35% to 60%. Here, the  
6 specific examples disclosed by the Specification reasonably delimit the  
7 genus of wafer-holding carriers in which the total area of the polishing  
8 agent-passing holes of each carrier occupies no less than 15%, but no  
9 more than 30%, of the main surface of the carrier but not a subgenus in  
10 which the total area of the polishing agent-passing holes occupies more than  
11 20% and 30% or less of a main surface of the carrier. We sustain the  
12 rejection of claims 11 and 19-31 under 35 U.S.C. § 112, first paragraph, for  
13 failure to comply with the written description requirement.

14

15 *Second Issue*

16        The Appellant contends that Susumu fails to anticipate representative  
17 claim 11 because Susumu fails to describe a wafer-holding carrier in which  
18 each of the polishing agent-passing holes has a circular shape and a diameter  
19 of 5 mm – 30 mm. (App. Br. 18). The Examiner does not appear to cite any  
20 passage of Susumu describing a wafer-holding carrier in which each of the  
21 agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm.  
22 Susumu does disclose that “the opening area of one through-hole is ideally,  
23 for example, 60 cm<sup>2</sup> or less.” (Susumu, para. [0013]). As the Appellant  
24 points out, this disclosure corresponds to a diameter of 87.4 mm or less. The  
25 range disclosed by Susumu deviates by more than a trivial amount at its  
26 upper end from the range recited in claim 11. Since Susumu does not

1 disclose a wafer-holding carrier in which each of the agent-passing holes has  
2 a circular shape and a diameter of 5 mm – 30 mm, we do not sustain the  
3 rejection of claims 11, 19, 23, 27 and 31 under § 102(b) as being anticipated  
4 by Susumu.

5

6 *Third Issue*

7 The Appellant identifies three ways in which the wafer-holding carrier  
8 of claim 11 allegedly differs from that described by Susumu: (1) the total  
9 area of the agent-passing holes in Susumu's carrier occupies 0.8% to 20% of  
10 a main surface of the carrier (Susumu, para. [0009]), whereas the total area  
11 of the polishing agent-passing holes recited in claim 11 occupies more than  
12 20% and 30% or less of a main surface of the carrier; (2) each of the agent-  
13 passing holes has a circular shape and a diameter of 87.4 mm or less  
14 (Susumu 8, lines 1-3), whereas each of the polishing agent-passing holes has  
15 a circular shape and a diameter of 5 mm – 30 mm; and (3) Susumu describes  
16 using Susumu's carrier in a lapping process (Susumu, para. [0001]) rather  
17 than a polishing process. (*See* App. Br. 19-20). Despite these differences,  
18 the wafer-holding carrier of claim 11 would have been obvious from the  
19 teachings of Susumu.

20 Figure 4 of Susumu depicts “a relationship between the percentage of  
21 the total surface area of the carrier 13 occupied by the total opening area of  
22 the above-mentioned through-holes 19 and the occurrence of a cracked  
23 wafer by lapping employing this carrier 13.” (Susumu, para. [0014]).  
24 Susumu's disclosure indicates recognition that the percentage of the total  
25 surface area of the carrier 13 occupied by the agent-passing holes was a  
26 result-effective variable. The drawing figure indicates that the incidence of

1 cracking is relatively low when the total area of the polishing agent-passing  
2 holes is low compared to the main surface of the carrier. The incidence of  
3 cracking as depicted in Figure 4 begins to rise when the total area of the  
4 agent-passing holes is slightly below 20% of the main surface of the carrier.  
5 The incidence of cracking continues to rise when the total area of the agent-  
6 passing holes is 20% of the main surface of the carrier or greater.

7 Susumu teaches that the passage of slurry or agent through the agent-  
8 passing holes reduces the scratching of the lower wafer surface during a  
9 lapping process. (Susumu, para. [0009]). Susumu also teaches that the  
10 incidence of cracking increases when the total area of the agent-passing  
11 holes is 20% of the main surface of the carrier or greater because the  
12 increase in the total area of the agent-passing holes weakens the carrier so  
13 that the carrier may deform during lapping. (*Id.*) Despite this latter  
14 teaching, Figure 4 of Susumu indicates that the 20% upper limit on the total  
15 area of the polishing agent-passing holes is not critical in the sense of  
16 marking a sharp or step-wise increase in the incidence of cracking.

17 Since the range disclosed by Susumu, that is, the total area of the  
18 agent-passing holes in Susumu's carrier occupies 0.8% to 20% of a main  
19 surface of the carrier, touches the range recited in claim 11; and since the  
20 range recited in the claim is not critical, it would have been *prima facie*  
21 obvious for one of ordinary skill in the art to increase the percentage of total  
22 area occupied by the agent-passing holes slightly above 20% in order to  
23 increase the flow of slurry to the lower surface of the wafer during a lapping  
24 process. *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). The  
25 Appellants do not argue either that one of ordinary skill in the art would  
26 have been incapable of increasing the percentage of total area occupied by

1 the agent-passing holes slightly above 20% or that one of ordinary skill in  
2 the art familiar with the teachings of Susumu would have been unable to  
3 predict the results of doing so.

4 Likewise, it would have been *prima facie* obvious for one of ordinary  
5 skill in the art to choose an optimum range of agent-passing hole diameter  
6 within the disclosed range of 87.4 mm or less. The Appellants do not argue  
7 either that one of ordinary skill in the art would have been incapable of  
8 creating agent-passing holes of 5 mm – 30 mm in diameter or that the results  
9 of providing a carrier with holes of this size would have been unpredictable.

10 Finally, assuming for purposes of this appeal only that the recitation  
11 “polishing both sides of the wafers by a polishing agent” in the preamble of  
12 claim 11 as well as the recitation “for passing the polishing agent through”  
13 in the body of claim 11 limit the claimed wafer-holding carrier, the  
14 Examiner finds that both lapping and polishing are processes which typically  
15 utilize abrasive slurries in frictional contact with wafers to smooth or  
16 planarize surfaces of the wafers. (Ans. 6). The Appellants correctly point  
17 out that the terms lapping and polishing do not refer to identical processes,  
18 since polishing agents may differ from lapping agents. (*See* Reply Br. 8).  
19 Nevertheless, the Examiner’s findings support the inference that the two  
20 processes are similar.

21 “[I]f a technique has been used to improve one device, and a person of  
22 ordinary skill in the art would recognize that it would improve similar  
23 devices in the same way, using the technique is obvious unless its  
24 application is beyond his or her skill.” KSR Int’l Co. v. Teleflex, Inc., 550  
25 U.S. 398, 417 (2007). It would have been obvious to improve lapping  
26 processes by using a wafer-holding carrier in which the total area of the

- 1 polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier, and each of the polishing agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm.

The Appellant offers no evidence of unexpected results or other secondary indicia of non-obviousness with respect to the claimed wafer-holding carrier. We sustain the rejection of claims 11, 19, 21, 23, 25 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Susumu. Since the Appellant argues the patentability of claims 27 and 29 under § 103(a) solely on the basis that Susumu describes a lapping device and not a polishing device (*see* App. Br. 20-21), we sustain the rejection of claims 27 and 29 under § 103(a) as being unpatentable over Susumu. Since the Appellants argue the patentability of claims 20, 22, 24, 26, 28 and 30 under § 103(a) solely on the basis that Fuminari fails to remedy deficiencies which the teachings of Susumu do not show (*see* App. Br. 21-22), we sustain the rejections of claims 20, 22, 24, 26, 28 and 30 under § 103(a) as being unpatentable over Susumu and Fuminari.

## DECISION

We AFFIRM the Examiner's decision rejecting claims 11 and 19-31.

20 No time period for taking any subsequent action in connection with  
21 this appeal may be extended under 37 C.F.R. § 1.136(a) (2007).

AFFIRMED

26 Klh